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	his inability to pay the arrears of rent due at the rate of Rs. 2 per mensem (5-3) for the period 1st November 1924 to 28th February 1926. In the circumstances the Government waived the recovery of arrears of rent due (viz., Rs. 32).
(174) Deputy Tahsildar, Rampachodavaram,	Exempted from payment of rent for his quarters from 1st September 1926 to 31st August 1927 as the quarters were uninhabitable during the period owing to extensive repairs.
(175) Chief Engineer for Irrigation.	As the Chief Engineer took charge at Ootacamund on 30th April 1927 he could not occupy the quarters allotted to him at Madras till his arrival in Madras. He was exempted therefore from payment of rent for his quarters from 1st May 1927 up to the date of his arrival in Madras.

Appendix III.

[Vide answer to question No. 277 asked by Mr. G. Harisarvottama Rao at the meeting of the Legislative Council held on the 8th September, page 457 supra.]

G.O. No. 1672, Development, dated 29th September 1924.

Read—the following papers :—

I

G.O. No. 635, *Home* (*Education*), *dated* 14*th May* 1917.

Abstract.—Recording letter from the officer in charge of the Department of Industries forwarding a copy of the resolutions of the committee appointed by Government to advise regarding the continuance of glass experiment.

II

Letter from E. F. Thomas, Esq., C.I.E., I.C.S., M.L.C., Acting Director of Industries, to the Secretary to Government, Development Department, dated Madras, the 16th February 1923, No. 93-A/23.

I have the honour to invite a reference to G.O. Mis. No. 790, Development, dated the 13th June 1922, in which Government requested the Director to report the results of the investigations which he undertook to carry out on the possibilities of the bangle industry.

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2. It will be convenient at the outset to summarize the previous history of the departmental enquiries on the subject. In 1917 Government appointed a committee to examine the position as to the experiments in the manufacture of soda water bottles conducted by the Department of Industries and to advise whether those experiments should be continued and if not, whether, experiments should be made with other forms of glass ware. While considering that the experiments in the manufacture of soda water bottles were rightly discontinued and deprecating any idea of beginning these again the committee suggested inter alia that a preliminary survey should be made of the indigenous bangle industry in the Presidency and that in the light of information obtained by this survey it should be considered whether the department could do anything to assist the industry either by supplying the bangle makers with block glass or by arranging for them to receive technical instruction in bangle-making. The committee recognized however that it was doubtful whether indigenous bangles would be able to survive the competition of Austria unless protected by heavy import duties.

3. Mr. J. Narayanamurti who was deputed to make the necessary enquiries submitted a detailed report which dealt with

(1) the once flourishing state of the glass bangle industry in Southern India;

(2) the increase in cost of the indigenous bangle due to fuel difficulties consequent on increased forest reservation;

(3) the impurities in the raw materials used and the crude methods of manufacture employed;

(4) lack of ideas as to design though there is sufficient skill which can be turned to good account;

(5) the advent of Austria in the field with superior if somewhat costly bangles of attractive designs and delicate tints of colour.

In order to resuscitate the industry, Mr. Narayanamurti suggested that the indigenous methods of bangle-making should be replaced by improved and up-to-date methods as followed in foreign countries. He recommended

(1) that a large central factory under expert guidance and control should be established near a coal mine for the whole of India for the manufacture of glass blocks suitable for bangle-making;

(2) that the glass blocks should be supplied to the bangle makers at cost price and that additional facilities, for example, technical advice in the construction of improved bangle furnaces should be afforded them by Government itinerary engineers, etc. He also recommended the introduction of high protective tariffs as foreshadowed by the Glass Committee, the formation of co-operative societies among glass bangle makers, the grant of concessions to cut fuel at cheap rates by the Forest department, and the collection of and marketing the manufactured goods, with the assistance of the Industries department. On the eve of his transfer, Mr. Innes left a note stating that he did not think that much could be done for the bangle industry and the report might be recorded.

4. Mr. Campbell again reviewed the question in 1920 but after some discussion it was apparently decided that nothing could be done.

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5. The discussion then in Legislative Council during the November session of 1921 on the motion of Mr. Palmer regarding the opening of a glass factory in Madras again focussed public attention on the subject when Mr. Cotton promised to make further enquiries.

6. Though no reliable statistics are available as to the number of workers engaged in the industry, in this Presidency, careful enquiries made by Mr. J. Narayanamurti in 1917 in the eight districts and two zamindaris where the industry is of any importance revealed that the number of actual workers had fallen from 1,157 in 1895 to 316 in 1917 and an enquiry by the Assistant Directors of Industries conducted in 1920-21 in connexion with the visit of Mr. Vernon Bowles, the Agent of an English firm of glass manufacturers, revealed a further decline. More recent enquiries made by the officers of the department indicate that the decline in the number of workers engaged in the industry has proceeded still further. When coupled with these facts, it is remembered that the imports of glass bangles, which received a temporary check during the war, show signs of rapid recovery, the ultimate decay of the indigenous bangle industry would seem to be only a question of time.

7. It will be observed from the foregoing paragraphs that the resuscitation of the glass bangle industry has been repeatedly considered but as it continues to be brought up again and again, I propose to discuss in some detail the causes which have led to its gradual decline and the possibilities of reviving it. One great difficulty which has always operated against the development of this industry is of course the low status and the lack of capital of the workers in the industry. With a little traditionally transmitted knowledge of few simple processes and with a small capital which never increased, they once were able to eke out an existence. But when they came up against the products of an highly organized industry, they were certain to go to the wall and that is where they now are.

8. As the supply of bangles which are most in demand is derived from foreign countries, the question as to what assistance can be rendered by Government to the indigenous industry to enable it to recapture the market has elicited several suggestions which were considered at one time or other but after investigation had to be given up. The establishment near a coal field of a large central factory for the whole of India which would supply glass blocks to the bangle makers at cost price is an All-India question. Stress has been laid on the provision to the workers of technical advice but it is obvious that if it is to be useful it would have to be afforded almost at the homes of the workers. As these, however, are distributed in small numbers over out-of-the-way villages in various parts of the Presidency, the task seems hopeless. The instruction again would require to be of a purely empirical character and would not therefore touch the root of the trouble. With manufacture conducted by hand only, the variety of the bangles it is possible to produce, except as regards colour must necessarily be extremely limited and even if the workers were competent to benefit by it, any instruction in the principles of art and design would be wasted. The organization of co-operative societies among glass bangle workers might do something for them in the way of getting their materials cheaper and selling their products to better advantage. But this postulates that the bangles produced would find a ready market and would be able to withstand the competition with imported bangles as well as Indian products derived from Bombay,

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Cawnpore, etc. All the available evidence however points to the fact that bangle makers who are not whole-time workers but pursue their trade as a side line to agriculture are decreasing in number and are not found in any large number in a single village. A suggestion was made that Government should depute at public expense a few young men from the families of bangle makers or of merchants who deal in bangles, for training in improved design and methods of manufacture at one of the principal bangle factory in India, e.g., Ferozabad, but the extreme conservatism of the workers and their lack of education rules this out. I do not consider in the circumstances that any technical improvement of a permanent character can be introduced which will benefit the present glass bangle workers.

9. The question has been raised whether the demand for bangles which are imported from foreign countries can be met by a new development of the indigenous industry or by starting a bangle-making industry on modern lines. This would mean the establishment of an expensive bangle-making factory on modern lines controlled by men with technical and commercial knowledge and experience. A factory of this kind to have the slightest chance of succeeding must be located in a commercial and manufacturing centre, such perhaps as Madras, at which the raw materials will be readily and cheaply available and it must employ skilled workmen willing to accept the discipline and conditions of factory life. While it is improbable that a suitable site could be found for a factory of this nature, it is certain that the survivors of the bangle industry scattered over the country would not enlist as workmen and would be unsuitable if they did. The suggestion is therefore not one which will benefit them.

10. The result of the enquiries which I have instituted in regard to the progress made by the Western India Prospecting Syndicate and Messrs. Framroz & Co. with their glass works at Shikohabad and Ferozabad has not impressed me with the possibilities of the industry. In the former case it is understood that the furnace from which the firm were making block glass with a view ultimately to make bangles therefrom proved to be very inefficient and they had therefore to stop that furnace and have not indented for any machinery for the purpose of bangle-making. At the latter place also there appears to have been no noticeable improvement in the condition of the bangle-making industry over that of the previous year. The number of furnaces at work for turning out a special line of silky bangles recently introduced has, it is understood, decreased from 36 to 10 and the work has practically ceased owing to the competition of Japanese bangles which are superior in point of quality and tint. It may be mentioned incidentally that the alkali produced from reh deposits has been discarded by these factories after prolonged trials and only imported soda ash is now being used. The results of Dr. Marsden's investigations into the possibilities of manufacturing sodium carbonate from the alkaline earths of the Circars are, as Government are aware, discouraging.

To conclude, I agree with Messrs. Innes and Campbell in considering that the glass bangle industry is incapable of any real development and that we must leave the workers to struggle on or give up the unequal struggle to keep alive an industry which is now an anachronism. I can hold out no hope that even with Government assistance the indigenous bangle manufacture will be able to withstand the severe foreign competition which has practically chocked it. Even regarded as a cottage industry the production

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of these cheap bangles affords so little margin of profit to the agriculturist that it would be unkind to encourage him to pursue it in preference to other cottage industries from which a higher return could be anticipated.

Order—No. 1672, *Development, dated* 29*th September* 1924.

As the outcome of a resolution moved at the meeting of the Legislative Council held on November 16th, 1921, by Mr. A. T. Palmer recommending that estimates for the opening of a glass factory at some suitable place in the Presidency should be at once prepared and that provision for the factory should be made in the budget for the following year, the Director of Industries was directed to investigate the possibility of reviving the glass bangle industry.

2. The results of the Director's investigations are embodied in the letter read above. He is in agreement with the conclusions reached by two of his predecessors that the industry is incapable of any real development and that, even with Government assistance, the indigenous manufacture of bangles would not be able to withstand the severe foreign competition which has already practically killed the industry. He holds that, even as a cottage industry, the production of cheap bangles, affords so little a margin of profit to the agriculturist that it would be unwise to encourage him to pursue it in preference to other cottage industries from which a higher return could be anticipated. The Government considered it desirable before passing final orders on the Director's report to obtain the views of some leading members of the Legislative Council on the subject and with this object in view a questionnaire was sent out to 24 members of the Council. Of these only thirteen replied. Their replies entirely supported the view of the Director of Industries that the indigenous bangle industry is past redemption and that, if bangles are to be manufactured in this country, it can only be done in a factory. With one exception, there was also agreement that the enterprise was far too speculative for private enterprise to undertake and that, if a factory were to be started, it would have to be a Government concern. The Government do not, however, consider that, in the present financial conditions of this Presidency, they would be justified in embarking on an enterprise the prospects of success for which are so problematical. Even if a factory were established, it is very improbable that the workers who are still engaged in the bangle industry would be willing to work in it or would prove suitable, if they were. In these circumstances the Government do not propose at present to take any further action in the matter.

(By order of Government, Ministry of Development)

F. Noyce,
Secretary to Government.

To the Director of Industries.
Editors' Table.